Adoption of Fintech in Financial Market Transactions
A Study of Retail Investors of Bombay Stock Exchange and National Stock Exchange

Synopsis
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Submitted by

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1.1 INTRODUCTION

Fundamentally, FinTech is short for Financial Technology. FinTech is the term that describes the group of new financial technologies designed to enhance and automate the use and delivery of financial services. Thus, easing business dealings in the present day. With no universally agreed upon definition, FinTech is generally described as an industry that uses technology to make financial systems and the delivery of financial services more efficient. It is technologically enabled financial innovation that results in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services (Sun, Qiu, & Gai, 2017). FinTech firms are start-ups and other companies that use technologies to conduct the fundamental functions provided by financial services, impacting how consumers store, save, borrow, invest, move, pay, and protect money. It is a complete industry that deals with the integration of financial services and technology.

1.1 FINTECH INNOVATION IN FINANCIAL MARKET

As of yet, several companies have been launched that provide financial services online. They use software or other technologies to help individuals and businesses make payments, transfer money, get insured and even invest. FinTech's concern and area of activity extend from plain payments to cryptocurrency. PayPal, Zerodha, Policy bazaar etc. are some prominent examples. The Indian FinTech industry has shown huge growth over the past few years. India is gradually becoming a hub for many FinTech start-ups. SoftBank has been actively investing in many potential FinTech start-ups. India has secured the second position in the world with the largest FinTech start-ups following the United States in 2018 and has the world's third largest ecosystem. (Singh and Sachdev 2021) Government initiative toward promoting digitization of financial systems and cashless economy has been helpful in shifting consumer focus toward digital alternatives for financial transactions and services.

The adoption of FinTech, worldwide, grew at a rate of 64% in 2019, and in emerging markets, like China and India, the growth rate is at 87%. Funding from a diverse set of domestic and international stakeholders also contributed to the growth in digital payments. The rise of digital commerce, innovation in payments technology using AI, blockchain, the Internet of Things (IoT), and real-time payments and the introduction of mobile point of sale (POS) devices have also contributed to growth. 80 % of the

banking activities at top banks in the country run on digital channels, the country also has its own remittance programs that include FX Networks, InstaReM, and Remitly (cross-border money transferring FinTech companies). Many of these companies launch innovation labs, partnering with FinTech firms to develop Proof of Concept (POC) and to roll out products. Reserve Bank of India helps finance start-ups with loans for technology, while government approved new banking licenses and increased the FDI limit in the FinTech based insurance industry.

The number of FinTech deals has been increased in the country. In the second quarter of 2019, India witnessed 23 deals and China 15 deals in the same period. Some of the large Indian FinTech deals in 2019 are payment firm Razor Pay raised USD 75 million in June by Sequoia and Ribbit Capital and a digital insurance start-up Acko raised USD 65 million from Binny Bansal (Co-Founder of Flipkart), SAIF Partners, and others. Investors have invested more than USD 13.3 billion in FinTech companies since 2014 in India. In 2019, ZestMoney, a consumer lending start-up raised USD million from Goldman Sachs and their existing investors are Naspers FinTech, Quona Capital, and Flourish. The business-to-business (B2B) FinTech space attracted USD 657 million, surpassing the USD 617 million flowing into business-to-consumer (B2C) FinTech start-ups so far in 2019. 11 FinTech start-ups raised around USD 365 million in July 2019 that puts the total investments coming into this sector at USD 1.16 billion, almost equalling the entire year's FinTech funding at USD 1.4 billion in 2018. (Glover, 2022)

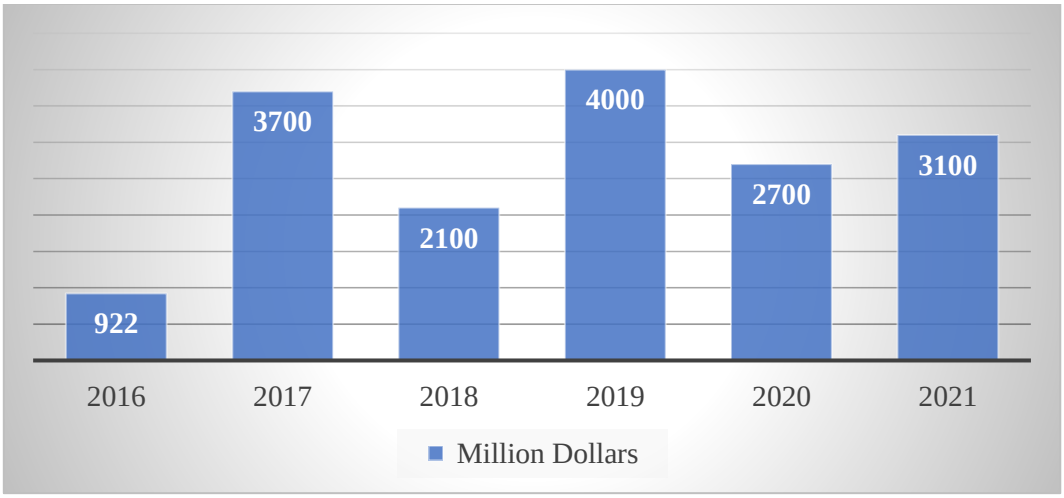

Figure 1 – FinTech funding in India
(Source- https://bfsi.economictimes.indiatimes.com/news/fintech/indias-fintech-market-size-at-31-billion-in-2021-third-largest-in-world-report/88794336.)

The Indian FinTech market has been on an upward growth trajectory over the last several years. This is evidenced by an increase in both the number of FinTech companies founded and the investment they have attracted. From April 2016 to December 2021, approximately 16 billion dollars in FinTech companies have been funded, turning India into a hotbed of entrepreneurial activity (Figure 1). This has also translated into increased consumer adoption of FinTech solutions. In 2018, India ranked second globally in the FinTech adoption rate. The average percentage of FinTech users in the country is 57.9%, behind China's 83.5%, and much higher than developed countries' 34.2%. With a strong technological ecosystem as its backbone and a huge market base with a low penetration of financial services (FS), the Indian FinTech market holds immense potential.

1.2 FINTECH INNOVATION IN STOCK MARKET

FinTech is not a new industry, it's just one that has evolved very quickly. Technology has, to some degree, always been part of the financial world, whether it's the introduction of credit cards in the 1950s or ATMs, electronic trading floors, personal finance apps and high-frequency trading in the decades that followed. Though the industry conjures up images of start-ups and industry-changing technology, traditional companies and banks are also constantly adopting FinTech services for their own purposes. The Indian FinTech market is estimated to record a CAGR of approximately 12% during the next 5 years. (Glover, 2022)

FinTech has caused an explosion in the number of retail investors in recent years. More than ever, the barriers to investing are being broken down by companies like Zerodha, Upstox and Groww. While these apps differ in approach, each uses a combination of savings and automated systematic investment plan methods, such as instant round-up deposits on purchases, to introduce consumers to the markets.

The Indian market is witnessing a strong surge of retail investors. Data by the SEBI reports shows that number of registered investors rose nearly 39% to 6.92 crore from a year ago in 2020. Maharashtra, Gujarat, Uttar Pradesh, Tamil Nadu and Karnataka are the states that top number of retail investors. This increase is reflected in the market capitalisation of firms listed with BSE, which hit the $3 trillion mark on May 21, 2020 making it the eighth largest market in the world. (SEBI bulletin, 2022)

Strong gains in equity, easy availability of booking apps and websites and the pursuit of alternative sources of income during the pandemic caused the surge in the number of retail participants.

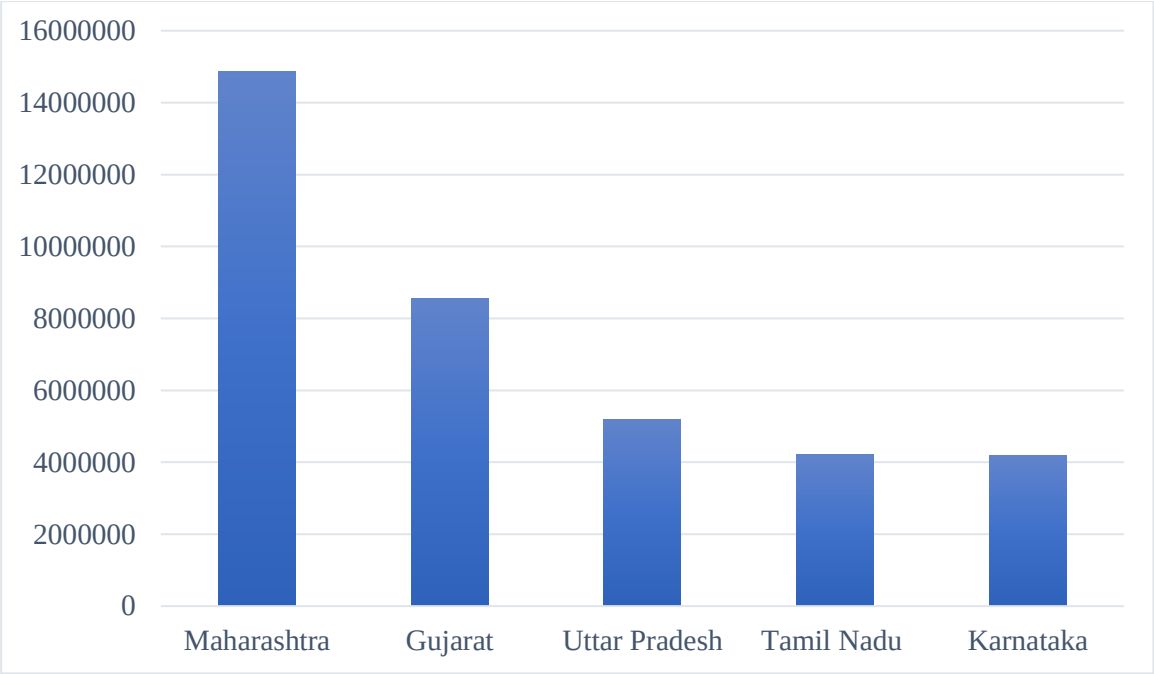

Figure 2 - Top 5 states in terms of retail investors in the FY 2020-21
(Source - https://www.sebi.gov.in/reports-and-statistics/publications/aug-2021/annual-report-2020-21_51610.html)

There can be ample of reasons for a great rise in number of retail investors in the share market but the two most prominent of them are the search for passive income and convenience and accessibility to stock market like never before. The first reason wouldn't have been enough to bring the enormous rise in investors volume unless the financial technology innovation in the way depository participants operate would have not come. The rise in literacy, digitization, additional income and awareness about the stock market can be said as some more reasons why stock market has seen such a drastic change.

The FinTech revolution has brought massive changes to the way investing is done. Trading happens in microsecond time frames, and while risks are emerging faster and in greater volume than ever before. Investments in general, and trading in particular, are activities that can't be left to luck. Although it is possible to close a successful trade without knowing exactly what you've done, the best traders are the informed ones who know their financial situation, understand the economic context that influences asset prices, are good at managing risk, and how where to place their money.Before FinTech, becoming one of these traders required a long journey of trial and error. As for advice, it only came under the form of mentorship. Today, thanks to FinTech, traders have robo-advisors – (specialized online services that use AI to understand the trader's goals and provide automated trading advice in a user-friendly

interface.)

Although they're inexpensive, robo-advisors can handle sophisticated tasks with no human help, such as selecting investments, tax-loss harvesting, or building personalized investment portfolios. This way, even beginners can start trading responsibly and boost their education without having to follow a course. In comparison, traditional (human) advisors typically only work with clients who have at least Rs.100,000 in assets, charge up 2% and aren't available 24/7. Of course, there will always be cases when a human touch is required, but, in most cases, and especially for beginners, robo-advisors are more than enough to ease the trading process.

As AI becomes more sophisticated, FinTech will also start to play a poignant role in risk management in trading. Although risk is inherent to trading and loss is often unavoidable, new technologies have made it possible to develop advanced algorithms that analyse the state of the market and the global economy. This way, retail investors will know when they should execute a trade and when it's best to wait.

1.3 STOCK MARKET IN INDIA - BRIEF HISTORY AND TRANSFORMATION IN WAYS OF TRADING AND INVESTMENT

The stock exchange is an organized market for the purchase and sale of listed industrial and financial securities. Stock exchanges or secondary market is essentially a match maker between subsequent buyer & seller and it doesn't deal in new securities. Thus, stock exchange is not a place for origin of securities rather it is a place for their subsequent trading. Stock exchanges in India is defined and regulated under the Securities Contracts (Regulation) Act 1956 and it is defined as, "an association, organization or body of individuals, whether incorporated or not, established for the purpose of assisting, regulating and controlling business in buying, selling and dealing in securities". The BSE is the oldest stock exchange in Asia and was the first to be granted permanent recognition under the Securities Contract Regulation Act, 1956. In the post-independence era, the BSE dominated the volume of trading. However, the low level of transparency and undependable clearing and settlement systems, apart from other macro factors, increased the need of a financial market regulator, and the SEBI was born in 1988 as a non-statutory body. It was made a statutory body in 1992. After the Harshad Mehta scam in 1992, there was a pressing need for another stock exchange large enough to compete with the BSE and bring transparency to the

stock market. (Rajawat, 2022) This gave birth to the National Stock Exchange (NSE). It was incorporated in 1992, become recognized as a stock exchange in 1993, and trading began on it in 1994. It was the first stock exchange on which trading took place electronically. In response to this competition, BSE also introduced an electronic trading system known as BSE On-line Trading (BOLT) in 1995.

The BSE launched its sensitivity index, the Sensex, now known as the S&P BSE Sensex, in 1986 with 1978–79 as the base year. This is an index of 30 companies and is a benchmark stock index, measuring the overall performance of the exchange. The index reached the level of 1,000 in July 1990, 2,000 in January 1992, 4,000 in March 1992, 5,000 in October 1999, and 6,000 in February 2000. The exchange introduced equity derivatives in 2000. Index options were launched in June 2001, stock options in July 2001, and stock futures in November 2001. India's first free-float index, BSE Teck, was launched in July 2001.

Its competitor, NSE, launched its benchmark exchange, the CNX Nifty, now known as Nifty 50, in 1996. It comprises of 50 stocks and functions as the performance measure of the exchange. In terms of electronic screen-based trading and derivatives, it beat BSE by launching first of its kind products and services.

1.4 DE-MATERIALISATION

The Stock Exchanges in India did follow the Traditional trading and settlement procedure till the year 1995. Traditional trading was paper based trading. Due to its narrow approach, complicated systems and lack of knowledge among people trading was not a usual activity among people. The traditional methodology hindered the growth of the Stock Market and its integration with other international markets. The administration and the regulatory authority followed suit to implement electronic trading and settlement procedure. This was carried out with the enactment of the Depositories Act in1995.

In order to mitigate the risks associated with share trading in paper format, dematerialisation concept was introduced in Indian Financial Market. Dematerialisation or Demat in short is the process through which an investor's physical share certificate gets converted to electronic format which is maintained in an account with the Depository Participant. An investor who wants to dematerialise his shares needs to open a demat account with Depository Participant. Investor surrenders his physical shares and in turn

gets electronic shares in his demat account. India adopted the demat System successfully and there are plans to facilitate trading of almost all financial assets in demat format in future.

The dematerialisation process was implemented on a phased manner with the establishment of Depositories and the conversion of the registration of the shares from paper form to electronic form. The Depositories Participants were registered, spread and placed across the country. The Dematerialisation was completed in a time bound manner due to the strict compliance norms issued by the concerned regulatory authority SEBI.

Dealing in demat format has been beneficial for investors, brokers and companies alike. It reduced the risk of holding shares in physical format from investor's perspective. It's beneficial for brokers as it reduces the risk of delayed settlement and enhances profit because of increased participation. From share issuing company's perspective, issuance in demat format reduced the cost of new issue as papers are not involved. Efficiency and timeliness of the issue is also maintained while companies deal in demat format.

This modern form of trading brought a drastic change in the number of retail investors, trade intermediaries and also in types of intermediaries. Paperless trading was a start of the new era in the stock market; an era where entrance in the stock market was convenient like never before. This also created several opportunities to work as brokers, advisors, investment planners, derivative brokers etc.

1.5 CRYPTO AND TRADING

Although the cryptocurrency market isn't growing as quickly as expected, the industry has matured and now crypto enthusiasts can use their assets for trading as well. Brokers are slowly starting to allow users to trade with crypto as they would with conventional currency pairs and, even when that's not possible, they can choose to fund their accounts with bitcoin.

FinTech has opened new horizons to traders. Thanks to technology, people can execute trades and manage trading accounts as easily as they make money transfers and the best part is that they don't have to count on a financial institution to do so. Combined with the widespread availability of real-time information, this empowers traders to develop solid strategies based on their goals. As FinTech continues to grow, its influence on trading will grow too, so experts expect trading volumes to increase even more. In the long run, this will also create new business models and, contrary to popular belief,

digitization will not lead to fewer jobs in finance, but rather to a shift in the allocation of human talent.

2. REVIEW OF LITERATURE

2.1 Digitalization in stock trading

Indirani (2021) highlights that the Digital Securities market is about to become a big hit. Today the high-speed computers used by traders can make a deal in nanoseconds a lot quicker than a human. The introduction of Algorithms into the markets has revolutionised the way stock brokers decide what stocks to buy and sell. Along with the benefits there will also be fraudsters manipulating the price of stocks. Adoption of the digital version of securites market is one of the fastest in China. Ahmad et al (2020) examines the impact of digital financial inclusion and human capital on China's provincial economic growth. Unlike previous studies, this study uses the new proxy of digital financial inclusion based on breadth of coverage, depth of usage, and digitalization level. His research findings has shown that digital financial inclusion and human capital significantly affect China's provincial economic growth. Based on this study's findings, Ahmad et al recommend investment in human capital development and, at the same time, upgrading digital financial inclusion to attain higher economic growth. There's the other side of this digital financial inclusion which needs to be analysed and i.e, whether it has any negative impact on stock market or not. Sekmen et. al (2019) did the research, covering one of the aspects of this other side. He explored the relationship between technological advancements in financial markets and volatility of indexes of the stock market in Turkey. Due to less market friction through advanced digital trading platforms, High frequency trading and Algorithmic trading have a substantial rise since past decade which has made the indexes more volatile like never before. Electronic trading has commercialised the stock market to such an extent that the buying of securities has been a task which looks equivalent to e-shopping. Shukla et. al (2019) observed that earlier investors were alone smitten by their brokers however today they're taking part additional in shopping for and commercialism of shares with the assistance of net. E-trading has saved time, energy and cash because it helps to access the market from any wherever at any time.

Faghani et. al (2013) brings into notice that computerized and electronic trading not only improves the rate and speed of buying and selling into stock market but also increases convenience for all the participants in the securities market. Ali Ashraf et al (2009) examined that the presence and access of

internet to the stock market retail investors has increased the volume and volatility in all types of securities. Internet has increased the knowledge of the people about the institutions in which they invest, due to which they are making more informed decisions than ever before. Therefore, a sharp rise in volume and volatility is evident. Walia and Kumar (2007) concludes that there is no denying the fact that internet trading offered investors convenience of trading along with reduced cost. But Indian investors have not yet fully realized the importance of using technology for stock trading. The major findings of the study are the Indian investors are more conservative, they do not change brokers for trading, whereas net traders are more comfortable with online trading for its transparency and complete control of the terminal. The backend side of the technological based finance industry is also the area to be covered for a better understanding of how systematically the technology is embedded in the finance industry. To cover and explain this Gabor et. al (2016) examines the growing importance of digital-based financial inclusion as a form of organising development interventions through networks of state institutions, international development organisations, philanthropic investment and FinTech companies. The digital revolution adds new layers to the material cultures of financial inclusion, offering the state new ways of expanding the inclusion of the 'legible', and global finance new forms of 'profiling' poor households into generators of financial assets.

2.2 Growth and Adoption of FinTech

Amstad et. al (2019) explains that compared to Western countries, FinTech in Asia is advancing at an almost blinding speed. The evolution of financial system through FinTech completely depends upon the ability and extent of regulation of government. The private sector innovates but it is the government that regulates. Digital currencies may turn up as investment assets rather than a medium of exchange in the upcoming time. Laure (2019) explains that FinTech is fast becoming a global phenomenon, led by innovators and followed closely by academics, and now drawing the attention of regulators. While its impact to date has primarily been felt in developing economies like China and India (Ernst & Young 2017), it promises to force legacy financial institutions in developed economies to clarify their strategies, develop new capabilities, and transform their cultures. The innovation world has already recognized the potential of financial innovation, and the number, variety, and reach of FinTech start-ups has risen in the last decade. Deepak Kalra (2019) analyses the future and evolution of FinTech from the

glasses of historical dissection. FinTech was mainly restricted to back-office processes of banks leveraging software and applications to manage customer accounts and their transactions in a secured, centralized, and efficient way. Now FinTech has reached the front end and is being adopted by the common people quicker than expected. He conceptualized FinTech as a technological encapsulation of Financial Sector rather than a technology. Smartphones with highspeed Internet has triggered the growth of FinTech through customer facing apps. Takahashi et al (2018) predicted that the global smartphone usage will surpass 3.8 billion by the end of year 2021, accounting for 48% of the global population. The past clearly dictates that future of finance is FinTech and every industry has to adopt it as quickly as possible. Gulamhuseinwala et. al (2015) presents the findings of new research focused on the consumer adoption of FinTech. FinTech products — financial services products developed by non-bank, noninsurance, online companies — offer alternative ways of accessing a variety of services, from money transfers to financial planning. Adoption is relatively high for such a new category – with 15.5% of digitally active consumers using FinTech products. The projected growth is dramatic: the adoption levels could potentially double in 12 months. FinTech adoption peaks above 40% among digitally active users with high incomes — which means that some of the most economically valuable customers for banks and insurers are already FinTech customers. Manasov and Ivanovska (2020) defines the connection between users' gender, age and income and the FinTech services adoption. Research has been conducted via a structured online questionnaire covering more than 150 financial services users from the Republic of North Macedonia. The results showed the average FinTech services adoption rate is 45%. The results of research indicated no statistically significant relationships between the independent variables - gender and age and the dependent variable - FinTech services adoption. The same test pointed out the statistically relevant connection between the independent variable of average income and the dependent variable - FinTech services adoption. Geranio et. al (2017) highlights that the mass adoption of FinTech in investment market will require longer efforts and is expected to come in a decade, at least. FinTech developments are receiving strong attention also by regulators and international organizations, given the potential of distributed ledger technology for both competition enhancement and cyber risk reduction.

2.3 Risk and Challenges posed by FinTech in stock market

Herrmann et al (2021) explains that Artificial Intelligence (AI) is creating a rush of opportunities in the financial sector, but financial organizations need to be aware of the risks inherent in the use of this technology. Financial organizations are integrating AI in their operations: in-house, outsourced, or ecosystem-based. The growth of AI-based FinTech firms has encouraged several mergers and acquisitions among financial service providers and wealth managers as they grapple with volatility, uncertainty, complexity, and ambiguity. Horn et al (2020) exemplifies through his research work that, as the evolution of FinTech has laid the foundation for the next generation of technical innovation in the financial service sectors, there is a considerable amount of ecological, societal, and technological risks from consumer and retail investor perspectives. While FinTech innovation has the potential to make financial services easier, cheaper, and better available, all payment and investment services have in common the technological risks arising from the possibility to (mis)use consumers' and retail investors' data for price discrimination or identity theft. Restoy (2020) reviews recent policy developments in the area of FinTech. It discusses pending challenges, focusing on the need to strike the right balance between promoting orderly innovation and preserving market integrity, financial stability, consumer protection and a level playing field. It stresses that the principle of "same activity, same regulation" does not provide the full answer to regulatory challenges. The same activity performed by different entities (deposit-takers versus non-deposit-takers, regular FinTech versus big techs) generates different risks. Therefore, activity-based regulation should be considered as a complement to rather than as a substitute for entity-based regulation. Todorof (2019) evaluates that the FinTech products can be used within the dedicated regulatory framework or into the deep layers of the Internet to ensure financial stability through investor protection measures and measures protecting the integrity of the financial market. He further argue that by definition their market presence is not only across the entire Internet, but also very high in volume. This is all the more the case because FinTech's brainchild, the cryptos, have become the go to currency for many activities outside the law. Aldridge et. al (2017) advocates that the FinTech revolution has brought massive changes to the way investing is done. Trading happens in microsecond time frames, and while risks are emerging faster and in greater volume than ever before, traditional risk management approaches are too slow to be relevant. Today's investors face an environment in which

computers and infrastructure merge, regulations allow dozens of exchanges to coexist, and globalized business facilitates round-the-clock deals.

2.4 Impact of FinTech in stock market on increasing competition

Macartney et al (2021) investigated that the fixed-income corporate bond markets were the last bastion of non-electronic trading activity. For most of the twentieth century these markets were also dominated by the largest Wall Street dealer-banks. The two explanatory factors, the emergence of new financial technology and the decisive intervention of state managers and post-crisis regulation – in the form of the Volcker Rule and Basel III. Recent accounts have become increasingly sceptical of the disruptive, pro-competitive impact of FinTech. We argue that – at least in markets for US corporate bonds – there is evidence of a more competitive, democratic market environment emerging as a direct result of new financial technologies. Considering the excessive competition created by FinTech in stock market a study done by Hagströmer et. al (2013) brought up the regulatory debate of how High-frequency trading gives an unethical advantage to the institutional investors to strike the imbalance between demand and supply of stock market to make profits. Again, the rich are getting richer through digital trading and the retail investors are the ones who just stay as participants in the market to make losses most of the time. The spirit and confidence of competing to earn in securities market comes with the access to the knowledge and capability to analyse it. Andersen et al (2004) explains how electronic trading enhances the ability of market participants to observe the information of trading process. Quantity and quality of information about different parameters related to the investing securities gives confidence to the investor to take big moves; therefore, increasing volume and trade in the market.

2.5 Researches based on other issues of FinTech

Hendershott et al (2021) who investigated that a form of algorithmic traders referred to as high frequency traders (HFTs) exemplifies the innovating role of FinTech in trading. They study algorithmic trading and its role in the price formation process. They found that Algorithmic trading consumes liquidity when it is cheap and provide liquidity when it is expensive. Contrary to conventional wisdom we find no evidence of algorithmic trading behaviour that would contribute to volatility beyond making prices more efficient. Even the market performance is also affected by excessive trading which is caused by adoption of FinTech in securities market Alryalat et.al (2007) analysed the effect of online and traditional trading

on effective market performance on the NASDAQ. Online stock trading mechanisms at the exchanges are often a hybrid of dealer and auction markets. Different aspects of trading execution, which is the most commonly used market centre at present, were analysed. This leads to a discussion on: (1) the path that executes order is organized and (2) its impact on the effective market performance, trading cost and investor behaviour.As there are many aspects related to FinTech for researching out of which Carlini et al (2021) investigated the effect of banks' investment in FinTech firms (FTF) on stock returns. Their results show that banks' investment in FinTech affect stock markets. The abnormal reaction is negative, larger for young and technology-oriented firms, and stronger in the case of multiple investments. Bank size, leverage and profitability do not moderate abnormal returns. Overall, this study suggested that bank equity investment in FTFs is an important determinant of abnormal stock returns.

Langley and Leyshon (2020) develops a perspective for critically understanding FinTech as a platform political economy that is marked by three distinctive and related processes: reintermediation, consolidation, and capitalisation. Through experimentation with the platform business model and building on the digital infrastructures and data flows of the broader platform ecosystem, a constellation of organisations – including start-ups, early-career firms, Big-Tech companies and incumbent banks – are engaged in processes of platform reintermediation. The imagined potential of FinTech has also triggered intensive processes of capitalisation, with platforms receiving significant prospective investment by venture capital, private equity funds, banks and Big-Tech firms. FinTech is also been referred as a new paradigm of technology to facilitate business, international trade, and services offered to retail consumers. To stand in the competition caused by new innovative firms providing FinTech based services many of the firms are joining hands to work together. Based on this aspect, Dranev et. al (2019) examines the growing role of FinTech firms in the recent mergers and acquisitions from an investor point of view, this research contributed to the existing literature by investigating the post-acquisition performance of the acquirer firms measured by abnormal returns. They discovered significant positive average abnormal return after acquisition of FinTech companies in the short-term and negative average abnormal return in the long-term using event study methodology. The newly made tech based financial soultions provided by these firms is what attracts the common people. Considering this, Micu and Micu (2016) analyse the implementation of FinTech solutions by the financial service

providers active on the Bucharest Stock Exchange (BVB), which were determined by the market institutions and the regulatory framework as per Romanian Financial Supervisory Authority as well as solutions aimed to provide better services to their customers, in the form on online trading platforms.

The aim of this evolving technology in the sector of finance was to serve the mankind for better. To understand if the FinTech in securities market is serving for the better or not, Chen (2016) analysed the market and states that the purpose of technology is not to make finance better, but to make finance serve real life better. FinTech has grown much faster in China than in the United States. In China, this success has come not from an initial technology advantage, but from integration between finance and real-life needs. This experience has important implications for understanding financial innovations, and for the development of inclusive finance. When it comes to measure the benefits received by the people through technology in finance, the best possible way is to see whether it has positively affected their earnings from the market or not. Barber and Odean (2002) analysed more than 1600 investors who switched from phone based to online trading during the 1990s. Those who shifted to online trading perform well prior to going online, beating the market by more than 2% annually. After going online, they trade more actively, more speculatively, and less profitably than before—lagging the market by more than 3% annually. They found that investors who choose to make investments online are better performers than those who do not go online before the switch but worse performers after the shift. His study is still relevant as newbies and people with low financial literacy are entering into the stock market due to the convenient access through FinTech.

3. RESEARCH GAPS AND NEED OF THE STUDY

Following are the research gaps being developed based upon the previous researches -

- The implementation of FinTech solutions can be divided into two main categories as solutions dedicated to the operations of financial services and solution towards the end usage by the clients. The former category has been a part of major researches in the first decade of this century but the latter has a lot more to research for.
- No study has been yet conducted that how financial technologies are democratising the capital market of our country; as great surge in the number of investors in the recent years and shifting of domination from institutional investors to retail is yet to be studied.

- The impact of making stock market accessible to the maximum number of people through innovative FinTech on the stock market itself is yet to be studied.

FinTech, the branch of start-up technology that deals with the financial sector, is opening up the world of data, and bringing disruption to the stock market. This disruption favours the everyday investor, by bringing more relevant and richer data to our fingertips. It's evident that being a combo of financial services and technology, FinTech has a deep-rooted relationship with the current stock market. The number of conveniences it brings to the people, to name a few are – making data analytics more accessible than ever; making investing in stocks more secure and safer than before, bringing important updates to your screen, simplifying investment procedures and also encouraging goal specific investments.

All this accessibility, convenience, knowledge etc of stock market to the people is surely democratising the capital market but the response of the users and investors of these FinTech enabled, technology driven capital market is yet to be analysed. Their impact over trade volume, types and numbers of intermediaries, and complexity in forms of trading eg; high frequency trading etc. and also the influence of non-capital market factors is required to be ascertained to have a clear picture of where the present trend of investors riding on the back of innovative and disruptive financial technology will take the Indian securities market.

4. RESEARCH QUESTIONS

Given here are research questions raised in this proposed study to find out their adequate answers:

- Does the new innovations in way of FinTech enhances the retail investors interest and awareness about the share market?
- Does the embedding of FinTech in share market increase convenience and reliability for the retail investors?
- Does the use of FinTech increase the volume of investment and frequency of trading?
- Does the efficiency and effectiveness provide by Fintech in stock market transactions affects the risk tolerance capacity of retail investors?
- Has the government updated and amended their policy and regulations to safeguard the interest and

investment of investors in share market through new trading platforms?

5. STATEMENT OF THE PROBLEM

The proposed study outlines the research problem as:

What are the major determinants to adopt Fintech by retail investors and up to what extent the FinTech is able to increase the number of transactions and trade volume?

6. OBJECTIVES OF THE STUDY

- To study the present scenario of FinTech in Indian financial market.
- To study the awareness of FinTech among the retail investors and their interest in stock market activities.
- To find out the reasons encouraging people to adopt the FinTech.
- To analyse the impact of FinTech on numbers of investors, frequencies of transactions, trade volume and trading pattern of retail investors.
- To study the government policies and regulations for safeguarding investors interest and information shared with FinTech trading platforms.

7. RESEARCH DESIGN & METHODOLOGY

7.1 HYPOTHESES

To make research work authentic, the following hypotheses are being formulated to test:

Table 1 - Formulated hypothesis in tabular format

H_{01}	There is no significant impact of FinTech on-	**Awareness and Interest Of retail investors** ⇨	Amount invested
			Percentage of income invested
			Number of transactions
			Sources of regular updates about market
			Expected returns
			Desire to invest more/divest
			Preference of trading or investment
			Short -term or long-term gains expected
H_{02}	There is no significant impact of FinTech on -	**Efficiency and Effectiveness in operation of Depository Participants** ⇨	Safety and security of data
			Software issues
			Grievance redressal
			Real time market information
			Withdrawal or deposit

H_{03}	There is no significant relationship of FinTech with -	**Risk tolerating Capacity of Investors** ⇨	Percentage of income invested
			Equity and Debt Ratio
			Mutual Funds investment
			Future and Options Trading
H_{04}	There is no significant relationship of FinTech with -	**Trade volume and Frequency of trading** ⇨	Number of retail investors
			Number of brokers
			Volume of investment
			Number of transactions
			Index volatility

7.2 DURATION OF THE STUDY

In the proposed study the period will be taken from 2012-13 onwards. This time period has been chosen by the researcher due to the availability of 4G network and smartphones in the major cities since this period.

7.3 COLLECTION OF DATA

Primary Data: The nature of study is such that it requires primary data and secondary data. Primary data will be collected through personal interview, survey, structured questionnaires/schedules from respondents, who are the current retail investors in stock market of the capital city of Delhi.

Secondary Data: Researcher will also use secondary sources such as published reports and documents from different institutions, authorities, books, extracts of journals, research papers and other online resources that are relevant to the study. Secondary data will be collected with the help of text data mining approach.

7.4 UNIVERSE OF STUDY

In proposed study, the retail investors of National Stock Exchange since last decade is the universe of study.

7.5 SAMPLE AREA AND SIZE

For the proposed research, all retail investors of India are the universe of study. The sample area is the city of Delhi. As it has the highest number of retail investors per million in 2021 in India.

Bill Godden's Formula for calculating sample size when the population is infinite:

Sample Size = {Z2 *P (1-P)}/C2

Where;

Z value = 1.96 on 95% level of confidence

The Z-value represents the probability that sample will fall within certain distribution. The Z value of 95% (1.96) which is universally accepted.

P = Percentage of population picking a choice, expressed as decimal which is 0.5 (50%)

C = Confidence interval, i.e., 100- 95= +/- 5%, expressed as decimal 0.05

As we apply the figures in the above equation, Researcher using the 95% confidence level and ± 5% precision; sample size output is 385. Therefore, the researcher will choose to survey 385 or more respondents.

7.6 SAMPLING TECHNIQUE

Random sampling technique will be used for data collection in respect of primary data. For studying the impact of FinTech on potential and current investors, people will be surveyed through questionnaire.

7.7 STATISTICAL TOOLS AND TECHNIQUES

In proposed study, the research work will be categorized as both Qualitative and Quantitative in nature. Descriptive statistics as well as Inferential Statistics will be used to obtain best reliable results and inferences from the collected data. In relation to this Time Series Analysis, Correlation, Regression Model, Parametric Test (such as z-Test, t-Test, f-Test, ANOVA etc.) and Non-Parametric Test (such as Chi Square test, u-Test, h-Test, Spearman Rank Correlation etc.) in accordance to suitability in proposed research work shall be used for analysing the data as per its nature and requirement.

7.7 RESEARCH METHODOLOGY

Table 2 – Objectives with their followed methodology in tabular format

OBJECTIVES	METHODOLOGY TO BE FOLLOWED
To study the present scenario of FinTech in Indian financial market.	Secondary data collected from periodical issues of NSE, BSE, SEBI, DSIJ etc to study the formation of new policies and digital campaigns by the government, foreign and domestic investments in FinTech, start-ups, unicorns, industries overridden, their growth, and use of new technology like blockchain, Artificial Intelligence and machine learning etc. in servicing B2B and B2C (Business to business and Business to Consumer).

To study the awareness of FinTech among the retail investors and their interest in stock market activities.	Survey will be conducted to collect the required information through a structured questionnaire from the respondents of chosen area. Likert scale and other econometric tools will be applied to collect and draw the reliable inferences.
To find out the reasons encouraging people to adopt the FinTech.	This objective will also be fulfilled by the survey conducted to collect information through structured questionnaire and use of several econometric tools.
To analyse the impact of FinTech on Number of investors, frequencies of transactions, trade volume and trading pattern of retail investors.	For achievement of this objective, both secondary data will be collected from statistical data provided by NSE and BSE. Time series and trend analysis will be applied on the secondary data collected to analyse the impact of FinTech.
To study the government policies and regulations for safeguarding investors interest and information shared with FinTech trading platforms.	To accomplish this objective, researcher will collect secondary data from journals, research papers, reports of different committees of Finance department published time to time and periodical issues of BSE, NSE and SEBI to know new guidelines and amendment in IT laws regarding cybersecurity, data encryption, data usage, third party share and other major safety issues.

8. IMPLICATION OF THE STUDY

In the proposed study the adoption of the FinTech by the retail investors in the stock market will be analysed. It will help us to know how much the innovative technology embedded in the trading system towards the end user is making a difference in their awareness, perspective, expectations, usage and satisfaction towards the stock market. FinTech in stock market activities has reduced friction and inconvenience and brought transparency and accountability in transactions. It also facilitated to enhance accuracy in estimation of investors' income by the government and reduced corrupt trading practices. This study will prove to be of immense benefit for further researches also based upon stock market as the response of the retail investors towards the evolving technology in stock market trading and investment has not been taken into consideration till now.

9. PROPOSED CHAPTER PLAN OF THE STUDY

Chapter 1: - An Introduction of Study

- FinTech evolution in India
- Digital trading and its changing dimensions and attributes
- The democratizing capital market – rise of retail investors

Chapter 2: - Review of Literature, Research Gaps and Need of Study

Chapter 3: - Research Design and Methodology, Profile of investors and the current scenario of FinTech

Chapter 4: - Data Analysis and Testing of Hypotheses

Chapter 5: - Results and Findings

Chapter 6: - Conclusion and Suggestions

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